SPY-BI-TAG: MSP430 SPY-BI-WIRE Adaptor for TC2030-MCP

Allows Tag-Connect TC2030-MCP cables to be used with TI’s FET430 for MSP430.

The “SPY-BI-TAG” SPY-BI-WIRE adaptor board allows use of our Tag-Connect TC2030-MCP series Plug-of-Nails™ cables with later versions of TI’s MSP430 MCU’s that support the SPY-BI-WIRE (2-Wire) JTAG interface and allow a tiny Tag-Connect footprint (as small as 0.02 sq. inch) to be used instead of the traditional 14-pin JTAG header.

Left: SPY-BI-TAG boards. Right: TI MSP-FETU430 shown with SPY-BI-TAG adapter board and TC2030-MCP cable – also works with TC2030-MCP-NL “No Legs” cable. When your board real-estate is at a premium, Tag-Connect is the way to go!

(TC2030 Cable, TI FET and Target Board shown for illustrational use only and are not included)

Tag-Connect - Save Cost and Space on Every Board!

Even smaller yet, the TC2030-MCP-NL footprint (circled in red) is shown against the 14-pin ribbon!

TC2030-MCP-NL shown held in place by the TC2030-CLIP board (not visible)

TC2030-CLIP board side-on.
**Application Notes (also see www.Tag-Connect.com)**

**IMPORTANT NOTE FOR USE OF FUSE-BLOW:** A 330 Ohm Fuse Blow Protect Resistor must be in place either on your PCB (between footprint pin 3 TCK and pin 6 TEST/SBWTCK) or alternately may be soldered in place on the SPY-BI-TAG PCB (solder an an 0805 330 Ohm resistor in the R1 location). See Figure 2-2 of TI’s MSP430 Hardware Tools User’s Guide (SLAU278C) for SPY-BI-WIRE connection details. The R1 330 Ohm resistor is not fitted in the shipping configuration of the SPY-BI-TAG adaptor.

**MAXIMUM CABLE LENGTH:** TI specifies a cable length of no more than 8 inches (20 cm). TC2030-MCP cables are available in 6” (TC2030-MCP and TC2030-MCP-NL) and 10” (TC2030-MCP-10 and TC2030-MCP-NL-10) lengths. We’ve tested extensively and experienced no problems using our 10” cables (we put the Tag-Connect footprint right at the MSP430) but you may wish to use only our 6” cables.

**Suggested MSP430 Hookup**

![JTAG / Spy-Bi-Wire Schematic](image)

**SPY-BI-TAG Schematic**

**TC2030-MCP Footprint Pinout**

- **Pin 1:** SBWTDIO
- **Pin 2:** JTAG Vcc OUT
- **Pin 3:** TCK*
- **Pin 4:** Target Vcc IN
- **Pin 5:** Vss
- **Pin 6:** SBWTCK

* Fit R1 Fuse Blow Protect to SPY-BI-TAG adapter or include on target board.

**Footprints, Decals, Technical Support:**

For access to technical support, product information and datasheets please visit our website: [www.Tag-Connect.com](http://www.Tag-Connect.com)


TC2030-MCP-NL and TC2030-CLIP Patent Pending